

Application No.: 10/757,351**Atty Docket: MLSE 1027-2****In the Claims:**

The following is a list of claims pending in this application and their current status. This list replaces all prior versions and listings.

1. (Currently amended) A method to detect one or a plurality of defective pixels in a spatial light modulator, comprising the actions of:

- providing an electromagnetic radiation source to illuminate said spatial light modulator,
- arranging a reference pattern in said spatial light modulator,
- illuminating said spatial light modulator,
- determining a position of a reference pixel in said spatial light modulator by detecting a relayed image of said reference pattern in a detector arrangement,
- arranging a first pattern in said spatial light modulator, wherein features in an area of the first pattern are too small and closely spaced to be individually resolved by the detector arrangement.
- illuminating said spatial light modulator,
- detecting a relayed image of said first pattern in said detector arrangement,
- arranging at least a second pattern in said spatial light modulator,
- illuminating said spatial light modulator,
- detecting a relayed image of said at least a second pattern in said spatial light modulator
- analyzing said relayed images of said first pattern and said at least a second pattern to detect differences between said images and theoretical images thereof.

2. (Original) The method according to claim 1, wherein said first and second patterns are chessboard patterns, where the first chessboard pattern is inverted to the second chessboard pattern.

3. (Original) The method according to claim 1, wherein the relayed image is detected by a CCD camera.

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4. (Original) The method according to claim 3, wherein the projection of a SLM pixel is bigger than a CCD pixel.
5. (Original) The method according to claim 1, wherein single pixels in the spatial light modulator are not resolved in said detector.
6. (Original) The method according to claim 5, wherein a spatial filter between the detector and the spatial light modulator is adapted to vary the degree of resolution on said detector.
7. (Original) The method according to claim 1, wherein at least one of said first and second patterns is detected by illuminating said pattern at least twice and detecting the relayed images separately.
8. (Original) The method according to claim 1, wherein at least one of said first and second patterns is comprised of only non deflected and fully deflected pixels.
9. (Original) The method according to claim 8, wherein said fully deflected pixels corresponds to a maximum degree of extinction by means of diffraction.
10. (Original) The method according to claim 2, wherein said chessboard patterns are comprised of only non-deflected and fully deflected pixels.
11. (Original) The method according to claim 2, wherein said chessboard patterns are comprised of only non-deflected and partially deflected pixels.
12. (Original) The method according to claim 10, wherein said fully deflected pixels corresponds to a maximum degree of extinction by means of diffraction.
13. (Original) The method according to claim 11, wherein said partially deflected pixels corresponds to partial extinction by means of diffraction.
14. (Original) The method according to claim 2, wherein said first and second patterns are each detected a plurality of times, where the pixels in said patterns are set to different degrees of deflection before each detection event.
15. (Original) The method according to claim 2, wherein said chessboard patterns are comprised of only fully-deflected and partially deflected pixels.
16. (Original) The method according to claim 2, wherein said chessboard patterns

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are comprised of pixels being in a first partially deflected state and a second partially deflected state.

17. (Currently amended) A method to detect at least one defective pixel in a spatial light modulator comprising numerous pixel elements, comprising the actions of:

- detecting a relayed image of a first chessboard pattern of pixels in said spatial light modulator by said detector, wherein squares of the first chessboard pattern are too small and closely spaced to be individually resolved by said detector,
- detecting a relayed image of a second chessboard pattern of pixels in said spatial light modulator, which is inverted to the first chessboard pattern, by said detector,
- analyzing the relayed images of said first and second chessboard patterns to detect differences between said detected images and theoretical images thereof.

18. (Original) The method according to claim 17, wherein the relayed images are detected by a CCD camera.

19. (Original) The method according to claim 18, wherein the projection of a SLM pixel is bigger than a CCD pixel.

20. (Original) The method according to claim 17, wherein single pixels in the spatial light modulator are not resolved in said detector.

21. (Original) The method according to claim 20, wherein a spatial filter between the detector and the spatial light modulator is adapted to vary the degree of resolution of said relayed image on said detector.

22. (Original) The method according to claim 17, wherein at least one of said first and second patterns is detected by illuminating said pattern at least twice and detecting the relayed images separately.

23. (Original) The method according to claim 17, wherein said chessboard patterns are comprised of only non-deflected and fully deflected pixels.

24. (Original) The method according to claim 17, wherein said chessboard patterns are comprised of only non-deflected and partially deflected pixels.

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25. (Original) The method according to claim 23, wherein said fully deflected pixels corresponds to a maximum degree of extinction by means of diffraction.

26. (Original) The method according to claim 24, wherein said partially deflected pixels corresponds to partial extinction by means of diffraction.

27. (Original) The method according to claim 17, wherein said first and second patterns are each detected a plurality of times, where the pixels in said patterns are set to different degrees of deflection before each detection event.

28. (Original) The method according to claim 17, wherein said chessboard patterns are comprised of only fully-deflected and partially deflected pixels.

29. (Original) The method according to claim 17, wherein said chessboard patterns are comprised of pixels being in a first partially deflected state and a second partially deflected state.

30. (Original) The method according to claim 17, further comprising the action of:

- identifying a SLM reference pixel in a detector pixel grid.

31. (Original) A method to detect at least one defective pixel in a spatial light modulator, comprising the action of:

- making an image of a first chessboard pattern unsharp so that a regular chessboard pattern becomes a uniform background at a detector plane and a defective pixel becomes an irregularity in said uniform background at said plane and detectable by a detector.

32. (Original) The method according to claim 31, further comprising the action of:

- making an image of a second chessboard pattern, which second pattern is inverted to said first pattern, unsharp so that a regular chessboard pattern becomes a uniform background at a detector plane and a defective pixel becomes an irregularity in said uniform background at said plane and detectable by a detector.

33. (Original) The method according to claim 31, wherein said detector is a CCD camera.

34. (Original) The method according to claim 33, wherein a projection of a SLM pixel

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onto said CCD is bigger than a CCD pixel.

35. (Original) The method according to claim 31, wherein said chessboard pattern is comprised of only non-deflected and fully deflected pixels.

36. (Original) The method according to claim 31, wherein said chessboard pattern is comprised of only non-deflected and partially deflected pixels.

37. (Original) The method according to claim 35, wherein said fully deflected pixels corresponds to a maximum degree of extinction by means of diffraction.

38. (Original) The method according to claim 36, wherein said partially deflected pixels corresponds to partial extinction by means of diffraction.

39. (Original) The method according to claim 31, wherein said chessboard pattern is comprised of only fully-deflected and partially deflected pixels.

40. (Original) The method according to claim 17, wherein said chessboard pattern is comprised of pixels being in a first partially deflected state and a second partially deflected state.

41. (Original) The method according to claim 32, wherein said chessboard pattern is comprised of only non-deflected and fully deflected pixels.

42. (Original) The method according to claim 32, wherein said chessboard pattern is comprised of only non-deflected and partially deflected pixels.

43. (Original) The method according to claim 41, wherein said fully deflected pixels corresponds to a maximum degree of extinction by means of diffraction.

44. (Original) The method according to claim 42, wherein said partially deflected pixels corresponds to partial extinction by means of diffraction.

45. (Original) The method according to claim 32, wherein said chessboard pattern is comprised of only fully-deflected and partially deflected pixels.

46. (Original) The method according to claim 32, wherein said chessboard pattern is comprised of pixels being in a first partially deflected state and a second partially deflected state.

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47. (Original) The method according to claim 31, further comprising the action of:
identifying an SLM reference pixel in a detector pixel grid.